Large-Scale Application of Nutrition Behavior Change Approaches:

Lessons from West Africa

Edited by

Margaret Parlato
Renata Seidel

BASICS

BASICS

BASICS is a global child survival support project funded by the Office of Health and Nutrition of the Bureau for Global Programs, Field Support, and Research of the U.S. Agency for International Development (USAID). The agency's Child Survival Division provides technical guidance and assists in strategy development and program implementation in child survival, including interventions aimed at child morbidity and infant and child nutrition.

BASICS is conducted by the Partnership for Child Health Care, Inc. (contract no. HRN-C-00-93-00031-00, formerly HRN-6006-C-00-3031-00). Partners are the Academy for Educational Development, John Snow, Inc., and Management Sciences for Health. Subcontractors are the Office of International Programs of Clark Atlanta University, Emory University, The Johns Hopkins University's School of Hygiene and Public Health, Porter/Novelli, and Program for Appropriate Technology in Health.

Recommended Citation

Parlato, Margaret, and Renata Seidel, eds. 1998. *Large-Scale Application of Nutrition Behavior Change Approaches: Lessons from West Africa.* Published for the USAID by the Basic Support for Institutionalizing Child Survival (BASICS) Project. Arlington, Va.

Abstract

Between 1987 and 1995, large-scale nutrition studies were conducted in three West African countries: Burkina Faso, Mali, and Niger. The program activities, involving 2.5 million people, targeted nutrition behaviors that are proven to reduce infant and child morbidity and mortality, and are now part of the BASICS nutrition Minimum Package. The Burkina Faso and Mali programs concentrated on small doable actions to improve maternal nutrition and infant feeding practices. As part of the Mali program, a separate study analyzed the cost of using a behavior change program to prevent malnutrition. The Niger program investigated communication strategies to increase the production and consumption of vitamin A–rich foods. The final section provides lessons learned on how to build a coherent nutrition communication system. The conclusion of the studies is that, even in impoverished communities, comprehensive, long-term communication interventions can produce significant improvements in a broad range of household-based nutrition behaviors.

Cataloging-in-Publication Data

Large-scale application of nutrition behavior change approaches: lessons from West Africa/ edited by Margaret Parlato [and] Renata Seidel. — Arlington, Va.: BASICS, 1998.

51 p.; 28 cm.

1. Nutrition—Research—Africa, West. 2. Children—Nutrition. 3. Children—Mortality. I. Parlato, Margaret. II. Seidel, Renata. III. BASICS Project.

RJ206 .L37 1998

Credit

Cover photograph courtesy of Peter Gottert.

BASICS
Basic Support for Institutionalizing Child Survival
1600 Wilson Blvd., Suite 300
Arlington, VA 22209 USA
Phone: 703-312-6800
Fax: 703-312-6900
E-mail: infoctr@basics.org

Internet: www.basics.org

Contents

Figures

About the Authors

Robin Anthony, formerly with NCP/Mali (Academy for Educational Development), is currently with the BASICS Project (AED/Washington, D.C.).

Jean-Parfait Doumba is with the Ministry of Health in Burkina Faso.

Brah Ferdows is with Helen Keller International in Niger.

Claudia Fishman, formerly with NCP (Porter Novelli/Washington, D.C.), is currently with Emory University.

Peter Gottert, formerly with NCP (AED/Washington, D.C.), is currently with the BASICS Project (AED/Madagascar).

Dandara Kanté, formerly a consultant with NCP/Mali, is currently a World Bank consultant in Mali.

Aissa Mamadoultaibou is with the Ministry of Health in Niger.

Margaret Parlato, formerly the director of NCP, is currently the vice president for nutrition and population programs at AED.

Jay Ross, formerly the coordinator for PROFILES (AED/Washington, D.C.), is currently with the LINKAGES Project (AED/Washington, D.C.).

Renata Seidel is with the Academy for Educational Development (Washington, D.C.).

Acronyms

AED	Academy for Educational Development
BASICS	Basic Support for Institutionalizing Child Survival
CARE	Cooperative for American Relief Everywhere
CNIECS	National Center of Information, Education, and Communication for Health
FAO	Food and Agricultural Organization
GNP	gross national product
HealthCom	Health Communication and Marketing for Child Survival Project
HHRAA	Health and Human Resources Analysis for Africa
HKI	Helen Keller International
IEC	information, education, and communication
KAP	knowledge, attitudes, and practices
MOH	Ministry of Health
NCHS	National Center for Health Statistics
NCP	Nutrition Communication Project
NGO	nongovernmental organization
PVO	private voluntary organization
RAP	rapid appraisal
SARA	Support for Analysis and Research in Africa
TA	technical assistance
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

Foreign Terms

arrondissement	A district.
Atelier Théâtre Burkinabè	A popular theater group in Burkina Faso.
carnet familial	A communication tool used in Burkina Faso; it resembles the standard family health card.
Communautés en Bonne Santé	A three-volume series of counseling manuals used in Bukina Faso. They are based on manuals produced by NCP in Mali.
Deux Familles Burkinabè	A slide presentation used in Burkina Faso.
encadreur	A trainer or supervisor.
Mooré	A national language of Burkina Faso.
Saheli Sama (Elephant of the Desert)	A radio drama series in Mali.
vox populi	The voice of the people.
yamoutse	A prepared, cooked salad of leafy greens.

Acknowledgments

Preparation of this report was supported by the United States Agency for International Development (USAID), Global Bureau, Population Health and Nutrition, under the Basic Support for Institutionalizing Child Survival (BASICS) Project (contract no. HRN-C-00-93-00031-00, formerly HRN-6006-C-00-3031-00). The interventions described here were supported by USAID's Office of Health and Nutrition under the Nutrition Communication Project (NCP) (contract no. DAN-5113-Z-00-7031-00), managed by the Academy for Educational Development (AED). The Mali cost study was funded by USAID's Africa Bureau under the Support for Analysis and Research in Africa (SARA) Project (contract no. AOT-0483-2178-00), also managed by AED. UNICEF also supported in-country activities in Mali and Burkina Faso.

The case study chapters of this document are abstracted from the respective final reports of the three country programs, all produced in 1995 and now available from the BASICS Project. The Mali cost study was abstracted from a study prepared in 1997 for the SARA Project. Publications of the SARA Project are prepared for and funded by USAID Africa Bureau's Health and Human Resources Analysis for Africa (HHRAA) project. The Lessons Learned chapter of this document summarizes a longer section found in the *Final Report of the Nutrition Communication Project*, published in 1996 by AED and now available from the BASICS Project. Please see the acknowledgments in the individual sections of this report for full citations of the original materials.

The authors and NCP staff would like to extend their special appreciation to Eunyong Chung, Cognizant Technical Officer for NCP (1990–1995) and to Hope Sukin, Africa Bureau, for their support in finding funds to launch these projects in West Africa and their encouragement to prepare this summary of results and experience.

The authors also wish to acknowledge the contributions of the many individuals and organizations who collaborated in conducting the projects in Burkina Faso, Mali, and Niger. The work described here is the result of their dedication, creativity, and hard work in finding ways to improve nutrition-related behavior. In particular, the authors would like to acknowledge the following people who were instrumental in the design, implementation, and evaluation of the projects.

Burkina Faso

Ministry of Health: Jean-Parfait Doumba, Nutrition Service, Division of Family Health, Project Director of the Burkina Faso Nutrition Communication Project; Didier Bakouan, Director, Division of Family Health; Derme Zenaib, Division of Family Health; Ambroise Nanema, Nutrition Service, Division of Family Health; André Ouedraogo, Director of Nutritional Surveillance; Leon Sanon, Nutrition Service; Emmanuel Ilboudo, Nutritional Surveillance; Fatimata Legma, Division of Maternal and Child Health; Kouyate A. Bocar, Division of Health Education and Assessment. **Academy for Educational Development**: Margaret Parlato, NCP Director; Peter Gottert, Senior Program Officer; Claudia Fishman, NCP Deputy Director, (Porter/Novelli); Amelia Duran-Bordier, Local Coordinator (1992–1994); Nemat Kazemi, Materials Design Consultant and Local Coordinator (1994–1995); Joy Morrison, Local Coordinator (1989); Hugues Koné, Evaluation Consultant (CERCOM); Gabriella Newes, Training Consultant; Joan Campbell, Research Consultant; Colin Fraser, Radio Consultant (Agrisystems, Ltd.); Philip Burnham, Radio Consultant; Antoine Kakou, Radio Consultant; Suzanne Dumais, Education Consultant; James Setzer, Final Evaluation Consultant (Emory University). **FIDEXCO**: Joseph Ouedraogo, Director. **l'Atelier Théâtre Burkinabè**: Prosper Kompaore, Director. **Théâtre de la Fraternité**: Jean-Baptiste Guigma, Director; Jean-Pierre Guingané, Director. **Radio Rurale**: Alexis Bagré. **Helen Keller International**: Tetévi Logovi, Representative, HKI/Burkina Faso; Christian Stengall, Vitamin A Project Training Coordinator. **USAID/Ouagadougou**: Jatinder Cheema, Health Development Officer and Acting Mission Director; Neen Alrutz, Technical Advisor for AIDS and Child Survival; Richard Greene, Health Development Officer;

Perle Combary, Health Programs Assistant. **USAID Office of Health and Nutrition**:
Holly Fluty, Cognizant Technical Officer for NCP (1988–90); Eunyong Chung, Cognizant Technical Officer for NCP (1990–1995). **UNICEF**: Ernesto Lopez, Nutrition Officer; Baron Soulimane, Communication Officer.

Niger

Ministry of Public Health: Aissa Mamadoultaibou, Aissata Guimba, Habou Kalla, Zeinabou Mohamed, Mounkeila Abdou. **Ministry of Agriculture**: Ousmane Abdou. **Tahoua Department**: Xavier Crespin. **Radio Tahoua**: Hachim Mohamed. **National Center for Health Statistics**: Moukeila Abou. **Helen Keller International**: Cheryl Combest, Else Sanogo-Glenthoj, Issa Camara, Brah Ferdows. **Academy for Educational Development**: Margaret Parlato, Peter Gottert, Nancy Keith, Man-Ming Hung, Hughes Koné, Rebecca Popenoe, Dandara Kanté, Shawn Baker, Stanley Yoder. **Porter/Novelli:** Claudia Fishman, Robert Porter. **USAID/Niamey**: Sylva Etian,
Carl Adbou Rahmann, Charles Habis, Nancy Lowenthal. **USAID Office of Health and Nutrition**: Holly Fluty, Cognizant Technical Officer for NCP (1988–1990); Eunyong Chung, Cognizant Technical Officer for NCP (1990–1995).

Mali

Ministry of Health: Djibril Semega, Director, Nutrition Service; Mamadou Kante, Director, CNIECS;
Felix Sidibé, Director, CNIECS; Fatoumata Maïga, Health Technician; Safiatou Tamboura, Health Technician.
Academy for Educational Development: Margaret Parlato, NCP Director; Claudia Fishman, NCP Deputy Director (Porter/Novelli); Peter Gottert, NCP Senior Program Officer; Robin Anthony, Local Coordinator (October 1992–June 1994); Ekaterina Sissoko, Local Coordinator (June 1994–March 1995); Dandara Kante, Local Consultant; Erma Wright Manoncourt, Training Consultant; Colin Fraser, Radio Consultant (Agrisystems, Ltd.); Philip Burnham, Radio Consultant; Antoine Kakou, Radio Consultant; Suzanne Dumais, Education Consultant; Jacqueline J. Geier, Training Consultant. **USAID/Bamako**: Neil Woodruff, HPN (1988–1993); George Thompson, GDO (1993–1995); Lynn Gorton, HPN; Fanta Macalou, Child Survival Assistant; Carol Hart, Acting HPN Officer (1995); Dorothy Stevens, TAACS Officer. **USAID Office of Health and Nutrition**: Holly Fluty, Cognizant Technical Officer for NCP (1988–1990); Eunyong Chung, Cognizant Technical Officer for NCP (1990–1995). **UNICEF**: Ellen Barclay, Nutrition Program Officer; Vickie Wise, Nutrition Program Officer.

Introduction

The three West African case studies profiled in this report, Burkina Faso, Mali, and Niger, describe communication strategies that were used to change nutrition-related behaviors at the household and community level. The activities and experiences from each project allow a close look at how malnutrition can be reduced if a systematic communication and marketing approach is applied as a routine component of health and other development programs.

The programs, funded by the United States Agency for International Development (USAID), were completed as part of the Nutrition Communication Project (NCP), and were managed by the Academy for Educational Development (AED).[1] The programs took place in Burkina Faso, Mali, and Niger; they included a cost-effectiveness study in one site (Mali). All three programs used a research-based methodology to identify and understand target audiences; develop strategies, messages, and media materials; and monitor and evaluate program impact. Program activities ranged from a multiprovince project that reached 2.5 million people to a pilot effort that reached 250,000 people. Nutrition goals and implementation approaches differed from country to country. Two programs (Niger and Burkina Faso) integrated nutrition into ongoing Ministry of Health child survival and family health projects. In Mali, the program was implemented through a group of NGOs engaged in health, and non-health and development activities; it reached 750,000 people through community-based activities and reached the nationwide population through mass media.

The West Africa programs targeted three of the primary nutrition behaviors that have been shown to reduce infant and child morbidity and mortality in the developing world and are part of the Basic Support for Institutionalizing Child Survival (BASICS) nutrition Minimum Package. The Mali and Burkina Faso programs focused on improving maternal nutrition and infant feeding practices. The Niger program explored communication strategies to increase the production and consumption of vitamin A–rich foods. Each project was unique in terms of the institutional context in which it was carried out, the mix of media and interventions utilized, and the overall impact on nutritional habits. At the same time, the three country programs benefited from cross-fertilization. Prototype communication materials were shared among the projects and adapted to fit the needs of varying audiences and message emphases. Joint training and the eventual sharing of professional expertise through consultancies also contributed to building capacities in the region.

The last section focuses on the lessons learned from the programs. Most important is the overall

[1] The purpose of the Nutrition Communication Project NCP (1987–95) was to assist USAID missions, host country institutions, and nongovernmental organizations throughout the world to create, implement, and evaluate efforts to promote better nutrition using modern communication methodologies. NCP carried out four large-scale integrated communication field programs in Burkina Faso, Honduras, Mali, and Niger and an urban hospital-based program in Peru and provided technical assistance to more than 25 countries. AED was supported in carrying out work under NCP by technical specialists from a core team of subcontractors: Porter/Novelli, Logical Technical Services (LTS), Johns Hopkins University, and Wellstart Lactation Management Group.

conclusion that *comprehensive, long-term communication interventions can produce significant improvements in a broad range of household-based nutrition behaviors, even in impoverished communities.*

Bringing about such improvements, however, requires a systematic and sustained approach that continually refers back to the unique and complex realities of a given area.

Dietary practices are based on agro-ecological and market conditions, economic constraints, cultural preferences, intrahousehold food distribution practices, beliefs about which foods are appropriate at which times and for whom, and traditional cooking practices and tastes. Of these factors, convincing people to make changes is considerably more challenging than the problems associated with poverty. Furthermore, programs have found that behavior changes need support during an extended period of time before they become part of individual and community norms. Without such long-term support, families that have initially adopted new practices often revert to previous patterns.

Evaluations of the programs produced information about what was useful, what worked and why, and what strategies and constraints may have limited a program's success. The Mali cost-effectiveness analysis also provided an estimate of the cost of preventing malnutrition through a behavior change program. The study also provides insights into appropriate methodological considerations for a cost analysis of such programs.

Burkina Faso

Integrating Nutrition Communication in a Family Health Program

Peter Gottert, Jean-Parfait Doumba, and Claudia Fishman

Overview

Burkina Faso, a predominantly rural nation of 10.4 million people in West Africa, is characterized by extreme poverty, illiteracy, and poor health. According to the 1993 National Demographic and Health Survey, in rural areas of the country, one-third of the children under 5 years of age have low weight for their age and one-third are stunted, both characteristics reflecting chronic malnutrition. Nutritional problems start early; infants are exclusively breastfed for an average of only one month. One in five children dies before his or her fifth birthday. Infant and maternal mortality rates are high, reflecting women's poor health and nutritional status and their limited access to basic health care. Women suffer from malnutrition; 14 percent have a low body mass index, a sign of chronic energy deficiency. Extreme poverty—the country has an annual per capita income of U.S.$300 and a female literacy rate of only 7 percent—undermines the ability of the average family to care for their most vulnerable members.

In 1989, the Nutrition Communication Project (NCP) began working with the Ministry of Health (MOH) to address the poor nutritional status of young children and women.[2] The project was an intensive effort to educate parents about specific actions they could take to improve their children's nutrition, beginning with the mother's diet during pregnancy, and to strengthen the skills of central and provincial MOH staff in developing and implementing nutrition information, education, and communication (IEC) strategies.

When the project started, the Burkina Faso MOH had relatively well-staffed but inexperienced maternal and child health and education units. Few, if any, health centers had nutrition communication materials, and few service providers had received training in practical ways to help mothers prevent childhood malnutrition. MOH staff were keenly aware of the need for new approaches to behavior change and for educational and training materials on infant and child nutrition; however, they were constrained by a lack of funds and technical expertise.

The NCP project had two major phases.

Initiation of Behavior Change Approaches in Three Northern Provinces

During 1989–90, the project provided short-term assistance to three provinces in conducting formative research and developing training and counseling strategies for use by a population of approximately

---

This case study is abstracted from the longer document, *Final Report: Burkina Faso Nutrition Communication Project*. (Washington, D.C.: Academy for Educational Development, June 1995). Available from the BASICS Project.

[2] The total budget was U.S.$1 million, with $46,000 going toward program evaluation.

900,000. The project also started to build the capacity of MOH personnel in systematic IEC approaches for improving maternal and child nutrition. The process included testing both messages and materials and limited production. (USAID's geographical scope in Burkina Faso subsequently changed, and the expected promotional and training activities did not take place; however, the strategies and materials served as prototypes for the second phase.)

Comprehensive Behavior Change Program in Eight New Provinces

During 1990–95, the focus of the project shifted to eight new provinces designated for USAID assistance, and the project team designed an integrated communication program as part of the bilateral Family Health and Health Financing Project. The provinces, dispersed throughout the country, had a total population of 2.5 million people, who spoke three different local languages. The communication strategy relied heavily on counseling and group talks by health workers. The major challenge the project team faced was to equip, train, and motivate some 500 health workers in 160 sites to carry out a program of nutrition education and counseling. Radio spots and a radio drama series were broadcast. This phase included collaboration with Helen Keller International (HKI) to support the communication component of a comprehensive vitamin A deficiency control project in the north of the country and a collaboration with the United Nations Children's Fund (UNICEF) to complete a school component in two provinces.

As in the first phase, the project team planned to strengthen the skills of central and provincial MOH staff to develop and implement nutrition IEC strategies. The emphasis on capacity building had profound implications for the pace of the project, the way decisions were made, and the overall technical quality of interventions.

The project's timetable was tight because USAID closed out assistance to the country in 1995 leaving less than five years for the project. Various strategies were used to "jump-start" activities, including adapting approaches and print materials developed in neighboring Mali and Niger (see the following chapters), and MOH staff exchanges between the countries.

Objectives

At the beginning of the first phase, the Ministry identified its primary beneficiaries as pregnant and lactating women, and children age 5 and under. The Ministry's initial interest was to supply health workers with educational materials to use during growth monitoring sessions. However, during the project, the focus expanded to include a broader range of nutrition-related behaviors and a skill-building approach to health worker training. The project had four behavioral objectives:

- To improve the diet of pregnant and lactating women;
- To promote exclusive breastfeeding for up to 6 months of age, followed by consumption of nutrient-rich complementary foods;
- To ensure that children ate nutritious foods after being ill, especially with diarrhea; and

- To encourage prenatal visits and attendance at growth monitoring and nutrition promotion sessions at health centers.

In the project's second phase, additional targets emphasized the promotion of vitamin A–rich foods. In both phases, the selection of materials to be developed was driven by the need to equip MOH health centers with communication tools.

Research and Formulation of Communication Strategies

In the original three northern provinces, the project conducted qualitative research in three sites to identify behaviors amenable to change, and optimal messages and media for reaching the community and health workers. As work shifted to the eight new provinces, the project repeated the research in four other provinces to confirm the appropriateness of project objectives, audiences, and messages. The research found that most parents were poorly informed about the special nutritional needs of children and pregnant or lactating women. However, many fathers expressed an interest in doing more to improve their families' health and nutrition. The survey also found that families had the necessary time, food resources, and economic flexibility to make positive changes.

Mothers and fathers of children under age 5 were identified as the primary target audience for messages. Mothers play a key role in child nutrition because they prepare most of the families' food. Fathers were targeted because of their traditional role as food providers and primary decision makers in the household. Health workers were designated as the main communication agents, with reinforcement from teachers and agricultural extension agents, to influence fathers and increase community outreach.

Behavioral Targets

The behavior change strategy promoted small "doable," culturally appropriate actions that most families could afford.

For mothers—

- Eat more food during pregnancy and lactation, and eat a healthy diet, including milk, fruit, vegetables, meat, fish, cereals, peanuts, and beans;
- Attend at least three prenatal consultations;
- Work less during the last trimester of pregnancy;
- Breastfeed exclusively in the first six months after birth;
- Give children enriched porridge and mashed fruits, beginning at 6 months of age; and
- Make a special effort to feed children who are sick or recovering from illness, especially diarrhea.

For fathers—

- Provide extra food or more money for food to wives who are pregnant or breastfeeding;
- Help wives or find others to do the heavy labor during the last trimester of pregnancy;
- Support wives in attending two to four prenatal consultations; and
- Purchase healthy snacks for wives and children.

More detailed messages promoted specific foods and stressed the father's responsibility to ensure the proper nutrition of family members.

Media and Outreach Strategy

Several key channels were selected to communicate the nutrition messages.

Interpersonal Communication

The project relied heavily on health workers as the major channel to communicate basic nutrition information to households. The communication strategy, therefore, was designed to ensure that contacts at health centers between mothers and health workers were positive and that appropriate, accurate technical nutrition information was conveyed. Numerous materials were designed to support specific dietary and feeding practices, and an effective interpersonal counseling approach.

Health Center Talks

The project developed a series of nutrition education materials to increase the frequency and quality of health center talks to groups of parents, mostly mothers.

Radio

Radio extended the reach of the program, provided "legitimacy," and motivated communication agents. The baseline survey found that 69 percent of men and 53 percent of women owned a radio or listened regularly to radio, especially during the dry season. A 20-episode radio drama and 12 one-minute mini-drama spots used the same story line as the *Deux Familles Burkinabè*, a slide presentation used to teach good nutrition. From October 1994 through March 1995, the drama and spots were broadcast on the government-run national radio station in the primary national language, Mooré.

Three additional secondary communication channels improved coverage and increased exposure to the principal messages.

Outreach to Men

Agricultural extension agents were trained to promote improved food production techniques to villagers and the agents were provided with nutrition education materials. The agents were able to interact informally with large numbers of men and showed good potential as nutrition communicators.

Literacy Programs

For more than a decade, well-financed literacy programs in Burkina Faso have trained thousands of adults to read; however, graduates had few materials with which to practice their skills. The project developed literacy books directly from nutrition flipcharts and incorporated the books into literacy programs (see figure 1).

Primary School Programs

The primary school health curriculum in Burkina Faso, which had not been revised in nearly 15 years, emphasized biological principles of human development rather than practical health actions. Girls, in particular, need basic skills to raise healthy families; they often become pregnant only two or three years after leaving primary school. Collaborating with UNICEF and HKI, the project designed and tested a *Teacher's Activity Guide* that highlights practical, behaviorally oriented nutrition information in a series of lessons built around the child-to-child (a child teaching other children) learning approach.

Figure 1.
Nutrition Flipchart Encourages Pregnant Women to Select Healthy Foods

IEC Materials to Support the Interpersonal Strategy

Phase I

After the focus group results were reviewed and draft nutrition messages were developed, the planners created materials that tapped into the oral tradition in African culture, particularly the narrative method of communicating social messages. The project hired a popular theater group, *Atelier Théâtre Burkinabè*, to promote healthy nutrition and feeding practices. The group constructed a story line that included practices that research indicated could be effectively promoted and that provided a realistic, dramatic context for the messages. When planning the story, they also considered possible cultural resistance to these practices. After the script was written, each scene was divided into a series of images and captured in a slide presentation. This was tested with local audiences and revised. A *Facilitator's Guide* was developed, which contained the text, group discussion questions, and community activities, such as role plays. During the project, the slide presentation, *Deux Familles Burkinabè*, served as the core creative basis for the other communication materials.

In phase I, these materials included the slide presentation, a nutrition counseling handout for health workers to give mothers, and a color poster encouraging men to give additional food to their pregnant wives. The project also prepared two health worker counseling manuals. These were adapted from the three-volume series, *Communautés en Bonne Santé,* produced by NCP in Mali. The first volume focused on the project's five-step counseling approach (see the case study on Mali). The second volume was a guide for

working with local village health committees. During phase I, two nutrition songs in national languages were recorded on cassettes and, in the next phase, were distributed during training workshops.

Phase II

Five flipcharts on different themes were developed, including vitamin A promotion, using a "village storybook" presentation, with illustrations by local artists. The NCP project teams in Burkina Faso and Mali developed two of the flipcharts together to reduce costs. A *Facilitator's Guide* was created to encourage health workers to use the materials.

The project also introduced a very successful communication tool, the *carnet familial*, which resembles the standard family health card. The card illustrated nine key nutrition messages. Mothers received stickers, on different visits, that could be placed over the illustrations to call attention to selected behaviors. Health workers liked to use the *carnet* as a way to prescribe health actions, and women used it to tell their husbands about recommended practices.

Four literacy booklets, written in Mooré, extended nutrition education to rural adults. The booklets were developed inexpensively by simplifying the text from the five flipcharts and using the same illustrations. The idea for using the flipcharts in this way had first been pursued in Mali; the approach was then adapted in Burkina Faso through a collaborative effort with the Burkina National Teaching Institute. The project held a one-day workshop in two provinces for literacy trainers to promote use of the booklets. The National Literacy Service subsequently introduced the booklets into its village-level courses. UNICEF also used them in its literacy activities.

To introduce nutrition into the primary school curriculum the project developed a *Teachers' Activity Guide* to facilitate use of the five flipcharts in the classroom. In an educational system that emphasized rote learning, the guide was designed to shift health education from learning about disease toward promotion of positive individual and family health actions. The guide emphasized child-to-child learning and encouraged family and community activities. It was pilot-tested in 25 schools, in two provinces, and then revised. Copies were distributed to all schools in the two test provinces.

Adding Nutrition to Health Workers' Skills

The project gave high priority to training health workers in techniques for nutrition counseling and conducting group discussions. At the project's inception, few staff members knew concrete ways to help mothers prevent childhood malnutrition. Approaches to nutrition education were based on a "transfer of knowledge" model rather than building on the perceptions and constraints of the target population.

The project trained central- and provincial-level trainers. Then, NCP supported a three-year program of skill-building workshops for 500 health workers and a limited number of primary school teachers and agricultural development workers. Training was held in 160 health centers, 20 centers in each of the eight intervention provinces, or approximately 75 percent of the centers in the project area.

During 1992–94, the project staff conducted five training-of-trainers workshops and 48 skill-building workshops. Sixty trainers, 160 clinic directors, 40 agricultural agents, and 65 teachers participated, with the health workers, in a series of three one-week workshops. They received comprehensive training on common nutrition problems and interpersonal communication skills, including counseling and the use of

visual aids. Trainees received a supply of educational materials: handouts, flipcharts, color poster, slide show, and tape cassettes with nutrition promotion songs.

For each of the three years, four to six months were devoted to conducting training-of-trainer and skill-building workshops, and another three to four months conducting supervisory visits to observe the trainees at work. These site visits provided valuable information that was used to make midcourse corrections and to redesign subsequent workshops. For example, project staff found that clinic directors trained in the first workshop series were not providing on-the-job training to their staffs. Because of this, more front-line health workers were included in the second series. The project staff discovered after the second series that health workers needed additional training in how to be flexible when they used the counseling materials; this training was added to the third workshop series. The project staff also learned that many trainees had been transferred to different posts, because the MOH relocates up to 20 percent of its field personnel each year. Subsequent training sessions were held after the new job assignments were made.

Evaluation Results

A final KAP survey (630 men and women), conducted in four of the intervention provinces in late 1994 as a follow-up to a 1991 baseline (640 interviews), found that more than half the population had been exposed to at least one source of information. Health center-based interventions reached 55 percent of the women surveyed and 26 percent of the men. These individuals received dietary advice from health workers. In most cases, the health worker asked questions about maternal nutrition or infant feeding practices and used flipcharts or other visual aids to illustrate points. The family health card was especially well remembered; 68 percent of women in the two provinces where it was inaugurated had seen it.

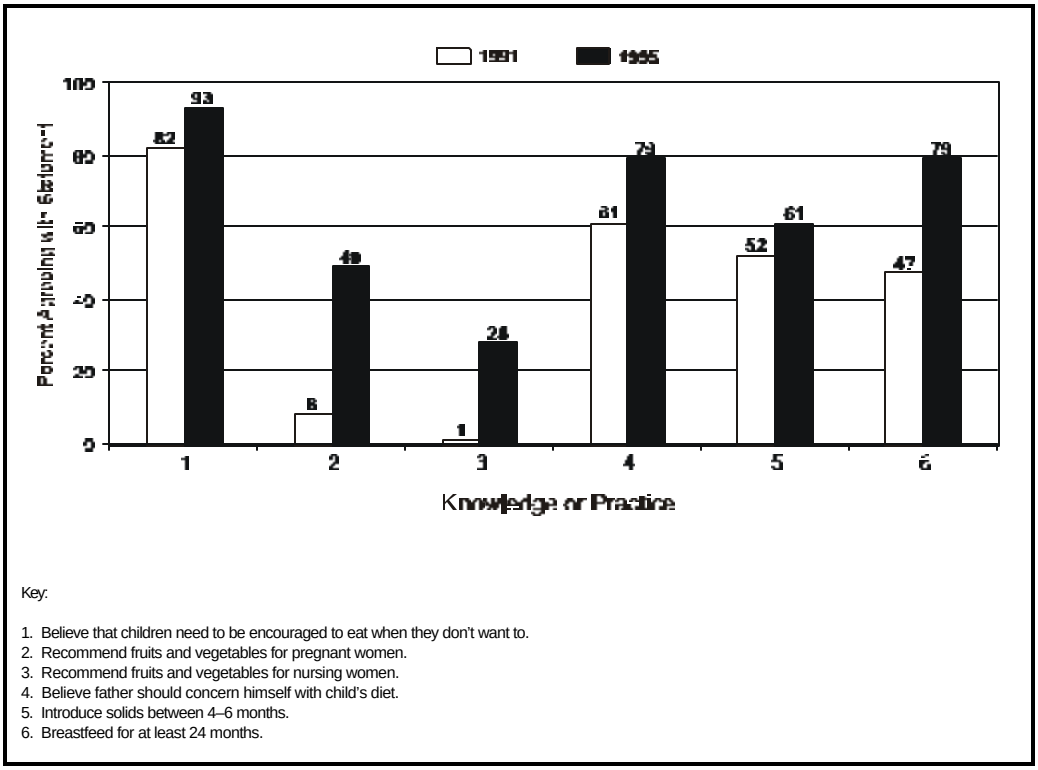
Radio was also effective in reaching the rural audience. A total of 41 percent of Mooré-speaking women and 60 percent of Mooré-speaking men recalled hearing the radio drama and spots broadcast in that language. Most of the listeners could recall the radio drama story line. Overall, nutrition-related knowledge, attitudes, and behavior improved in the intervention provinces. Parents who had been exposed to the nutrition messages demonstrated significantly higher levels of knowledge and reported a larger number of positive health and nutrition practices when compared with individuals not exposed to the intervention. Following are two examples.

- If a man's wife was exposed to project media, or if he was exposed to the media, the man brought home twice as many of the promoted healthy foods as men who were not exposed. A woman who remembered health workers using visual aids to explain good nutrition was more likely to purchase healthy foods, and to consume the foods herself, than women who were not exposed to the information.

- Listening to the radio programs was closely associated with increases in (1) health center attendance, (2) three or more prenatal visits by pregnant women, (3) money given to women by men to buy the promoted foods, and (4) sharing nutrition messages with others.

The more media the respondents were exposed to (five channels were tested), the higher their scores on survey questions of knowledge and reported behavior.

Figure 2.
Changes in Nutrition Knowledge and Practices in the Sample Population



Key:

1. Believe that children need to be encouraged to eat when they don't want to.
2. Recommend fruits and vegetables for pregnant women.
3. Recommend fruits and vegetables for nursing women.
4. Believe father should concern himself with child's diet.
5. Introduce solids between 4–6 months.
6. Breastfeed for at least 24 months.

As shown in figure 2, some key messages were poorly assimilated, suggesting that parents would have benefited from greater exposure. Because of delays in project implementation, the radio and sticker booklets were introduced only a short time before the evaluation survey was conducted. The final round of training workshops was completed one month before the survey, suggesting that the survey may not have documented the full impact of the communication program.

Interviews with 47 front-line health workers, conducted as part of the evaluation, found that 90 percent had a full set of flipcharts and 75 percent had attended the last training. However, because of transfers, only 43 percent had attended all three training events.

Institutional Development

The Family Health Division of the MOH managed the project, NCP arranged for part-time resident consultants to provide oversight and technical assistance, and a Burkinabè accounting firm handled project disbursements for training and materials production. This arrangement enabled the MOH to take full responsibility for project implementation while fulfilling the project's need for timely reporting and sound fiscal management.

In the process of implementing this project, the MOH staff at the central and regional levels gained extensive experience in all aspects of communication work, including a needs assessment, field research, materials development, training, mass media programming, supervision, and evaluation. A 1993 external evaluation of the Family Health and Health Financing Project concluded that "Project objectives in terms of studies, training, and materials development have been met or surpassed in spite of the usual constraints faced by the Ministry. It is a good example of the development of management skills in Ministry staff as a result of their taking responsibility for a program's operation."[3] The MOH has established a National Nutrition Center to continue the project's work. The emphasis on capacity building is likely to have multiple, long-term payoffs as nutrition messages and products continue to be disseminated and a rigorous communication methodology is applied to subsequent campaigns.

References

Academy for Educational Development (AED). 1995. *Final report: Burkina Faso nutrition communication project.* Washington, D.C.: AED.

Setzer, J. et al. 1995. *Knowledge, attitudes and reported practices: Evaluation of the nutrition communication project as implemented by the Ministry of Health and Social Action.* Atlanta: Rollins School of Public Health, Emory University.

[3] Devres, Inc. *Burkina Faso family health and health financing project: Mid-term evaluation* (Washington, D.C.: Devres, Inc., November 1993).

Mali

Assisting NGOs to Incorporate Nutrition Communication in Child Survival Programs

Claudia Fishman, Peter Gottert, Dandara Kanté, Margaret Parlato, and Robin Anthony

Background

Mali, located in the Sahel, is a landlocked West African country with a population of 9.2 million. Recurring droughts regularly decimate herds of cattle and goats, and destroy millet and sorghum crops, the main dietary staples. Infant mortality is extremely high at 170 per 1,000 live births; maternal mortality is 2,000 per 100,000 live births. According to the 1987 National Demographic and Health Survey, the proportion of children 3–36 months old showing signs of acute malnutrition (weight-for-height) was very high at 11 percent and chronic malnutrition (height-for-age) was about 25 percent. In Bamako, the capital, 15 percent of birth weights were below normal. According to Ministry of Health (MOH) studies, vitamin A deficiency was also a serious problem, particularly in the north.

Overview

The Nutrition Communication Project (NCP) in Mali (1989–95) collaborated with ongoing health programs to address the poor nutritional status of rural women and children. Rather than create a freestanding nutrition education program, the project worked with the MOH and nongovernmental organizations (NGO) to introduce a nutrition emphasis into their related programs, such as child survival, safe motherhood, and water and sanitation.[4] The project focused on building communication capacities within the NGO and central government organization. The National Literacy Service of the Ministry of Education was also an active partner; it worked to improve the nutrition curriculum in primary schools and incorporate nutrition messages into adult literacy materials.

NCP initially collaborated with the Nutrition Service of the MOH. In late 1990, the National Center of Information, Education, and Communication for Health (CNIECS) was formed, and it gradually became responsible for providing technical leadership to the implementing agencies.

This case study is abstracted from *Final Report: Mali Nutrition Communication Project* (Washington, D.C.: Academy for Educational Development, May 1995). Available from the BASICS Project.

[4] USAID provided $874,779 to fund the project and UNICEF contributed $220,000. Approximately $100,000 of the total was used for evaluation.

The project benefited from cross-fertilization with the NCP communication programs in Niger and Burkina Faso. Prototype communication materials were shared among the projects and adapted to fit the needs of varying audiences and message emphases. Joint training and the eventual sharing of professional expertise through consultancies also contributed to building capacities in the region.

The project's three phases included development, expansion, and consolidation.

Phase I—Program Development, 1989–91

Major activities with the MOH and three NGOs (CARE, Africare, and World Vision), which became known as the Nutrition Network, included audience research, a baseline survey, and strategy development. Initial emphasis was on developing a village-based counseling approach and preparing a first round of communication materials.

Phase II—Expansion, 1991–93

The project trained additional NGO Child Survival Project teams to begin nutrition communication activities. The baseline survey helped refine behavioral targets and plan further communication materials. The Nutrition Network grew to include three government ministries, ten local and international NGOs,[5] and several donors, including UNICEF, USAID, and the Food and Agricultural Organization (FAO).

Phase III—Consolidation, 1993–95

Focusing on the implementation of the broadcast, primary school, and literacy strategies, the Nutrition Network organized regular project planning meetings, and gradually transferred the responsibility for project implementation to CNIECS. When the project ended, UNICEF became the sole funding source of program activities; it continued under a new name, Communication Program for Family Well Being.

Objectives and Target Area

The overall project objective, to improve the nutritional status of women and young children in rural areas, was divided into three specific goals.

- Improve maternal nutrition during pregnancy and lactation;
- Sensitize parents to the importance of nutrition and improve their ability to feed children appropriately, including those who have been sick; and
- Promote consumption of foods rich in micronutrients, particularly vitamin A, by pregnant and lactating women, and children 6–36 months old.

Project activities were initially carried out in the Ségou region, about 300 miles east of Bamako, where the original three NGOs (CARE, Africare, and World Vision) were active. As the number of involved NGOs

[5] CARE, Save the Children, Africare, World Vision, Centre d'Appui Nutritionnel et Economique aux Femmes, Aide à l' Enfance Canada-Mali, Plan International, Association (entre-Aide et Développement, 3AG, and Programme Intégré de Dévelopmmement de Bafoulabé.

in the program grew, the intervention area expanded into the regions of Koulikoro, Kolondieba, and Sikasso. The program eventually reached approximately 750,000 people.

Audience Research

In December 1989, in one NGO project site, the project conducted ethnographic research to examine the behavioral correlates of malnutrition and vitamin A deficiency in rural communities. In March 1990, additional qualitative studies were conducted, including
16 focus groups and two market surveys. The research studied family dietary practices and related decision making, identified common vitamin A–rich foods, and studied communication channels (see figure 3).
There were four key findings.

- Mothers delayed feeding most solid foods until children were almost a year old, and they knew of few measures to help sick children regain strength following bouts of diarrhea and other illnesses.

- Neither men nor women were aware of women's or children's special dietary needs; however, the "right" to good food was thought to be the prerogative of adults who had earned it.

Figure 3.
Counseling Card Showing "Active Feeding" and Use of a Separate Bowl to Control Portion Size

- When a child survival project was active, villagers were more aware of the relationship between "good food and good health," and they were more inclined to believe in their own abilities to prevent illness.

- Night blindness, the first clinical sign of vitamin A deficiency, was a widely recognized condition thought to occur normally in pregnancy. Villagers knew of several traditional remedies, including the use, though not necessarily consumption, of animal liver.

A baseline KAP survey was carried out in three NGO sites (47 villages) in December 1990. The project team interviewed 835 women and 524 men and collected anthropometric indicators of nutritional status for 657 children. The survey showed that malnutrition was pervasive among children under age 3;
42 percent had weight-for-age less than 2 standard deviations below the National Center for Health Statistics (NCHS) reference standard for their age. Only one in three newborns received breast milk as a first food; for most newborns, complementary feeding was delayed until 9 to 10 months of age. Few children were supervised by adults while they ate. More than half the men said they received health information by listening to the radio; 80 percent of the women said that health workers were their primary source of nutrition information.

Strategic Planning

Based on research, 14 behavioral objectives were selected and then refined to a group of critical practices likely to show results within the time limits of the project. Target audiences and general message content were identified.

For women—

Messages about

- appropriate nutrition during pregnancy and lactation;
- breastfeeding and appropriate feeding of children at 6 months of age;
- discrete child feeding behaviors (for example, at least three supervised meals a day, use of a separate feeding bowl for children 12–36 months old, and recuperative feeding skills); and
- proper food choices to prevent and cure vitamin A deficiency.

For men—

Messages about their responsibilities for women's and children's nutrition.

For women and men—

Messages about healthy food choices in the market when purchasing snacks.

While exclusive breastfeeding through age 6 months was viewed as critical, the NGO partners felt this goal was unlikely to be achieved in the project's initial time frame (phase I). Therefore, materials on exclusive breastfeeding were not introduced until 1992, when the project was extended.

The Nutrition Network also made five tactical decisions based on the research.

- Phase in nutrition activities following other health or social interventions that can produce more visible results and help build motivation and self-determination within the community regarding health issues.

- Focus on increasing awareness of children's dietary needs; do not discuss the socially defined concept of children's rights to good food.

- Use night blindness to help the target audience understand the connection between dietary intake *(*eating enough red-orange or green, leafy vegetables) and good health *(*night blindness improves after the right foods are consumed).

- Direct some messages to intrahousehold resource allocation. Women in nearly every village had control over some resources, including garden products, poultry, small commerce, milk sales, and others. For the most part, however, men controlled the resources. Men needed to provide extra staple food or cash to meet the nutritional requirements of their young children and wives.

- Use economic and social rationales for investing in nutrition for women and children. Persuade men to purchase nutritious low-cost foods for prevention, and more socially esteemed and expensive foods, such as liver, for cure.

Communication Channels

Interpersonal and group counseling were the primary vehicles for reaching women; the project developed various support materials to help health agents bring messages to life. Men, however, were approached through village mobilization meetings, role plays, and radio. The project designed and field-tested all media with the participating NGOs.

Project teams in Burkina Faso and Mali collaborated on the development of an initial set of five flipcharts and a *Facilitator's Guide.* The village story book approach invited audiences to work through resistance points. In 1993, the project developed laminated counseling cards that emphasized the ten most critical nutrition behaviors. Colorful drawings, based on photographs, were taken of Malians performing these practices. Text on the back of the cards helped the NGO agent train preliterate village volunteers, primarily through a short story. Village agents used both the flipcharts and the cards to animate discussions, develop role plays, and counsel mothers about children's diet.

Originally developed in Burkina Faso, a *carnet familial,* or variation on the health card, included project messages and illustrated stickers. Field agents placed stickers on the messages during counseling sessions to emphasize the points discussed.

A three-part manual, *Communautés en Bonne Santé*, was developed to help field-level workers understand basic nutrition concepts and to strengthen techniques for working with both parents and community organizations.

The key mass medium was a dramatic radio series, *Saheli Sama (Elephant of the Desert)*, featuring a recalcitrant father who, with the advice of the community health agent and the meddling of various village characters, and through the practice of good nutrition, gets and keeps his family on the "Road to Health." Ten episodes of Saheli Sama were broadcast in July 1993 to a national audience. After consulting with rural radio experts and creative revamping of the program by Malian playwrights, a revised series was broadcast in November. The show was so popular that, in February 1995, the national radio station started broadcasting the series daily, and they created new episodes. Ten 30-second spots promoting priority behaviors accompanied the drama.

Secondary communication channels were part of child-to-child activities and postliteracy program materials. In early 1992, the project began efforts to strengthen nutrition education in primary schools through informal educational programs. With UNICEF, the program created a *Teachers' Activity Guide,* including classroom lessons and child-to-child activities. A set of three literacy booklets based on nutrition themes was produced for new adult readers.

Training

The project concentrated on training because its goal was to institutionalize communication capacities in ongoing NGO child survival projects and focus on counseling as a primary channel to communicate messages at the village level. Training, therefore, fell into two broad categories: (1) national strategy, planning workshops, and lessons-learned workshops; and (2) regional skill-building workshops.

At the first training, a Strategy Formation Workshop held in June 1990, the Nutrition Network partners reviewed the formative research and initial behavioral goals, and then planned activities. At the second training, a workshop on KAP Findings and Strategy Re-formulation, held in September 1991, behavioral objectives were refined.

A series of six skill-building workshops was conducted from 1990 to 1994. With HKI, the first series, *Launching the Community-Based Model*, trained MOH and NGO personnel and introduced the field guide and four draft flipcharts. The second series, *Individual Counseling*, introduced a five-step counseling approach to NGO and MOH staff (see Five-Step Approach). The third series, *Working Within the Community*, trained NGOs in group communication techniques and incorporation of the flipcharts into ongoing activities. The fourth series, *Effective Community Mobilization*, introduced the health worker's field manual and the carnet familial. The fifth series introduced the NCP Teacher's Activity Guides for nonformal education projects. In the final series, *Community Theater*, a consultant from the Niger project team introduced the use of traditional theater.

NGOs were encouraged to incorporate the new approaches and materials into their village-based programs. Each training workshop ended with the planning of activity calendars; community-level workers set their own performance goals. The CNIECS team conducted field supervision visits to selected sites. During the two years of project intervention, each of the ten NGO project partners was visited at least once.

Five-Step Approach to Nutrition-Related Assessment and Counseling

1. The agent, to gain an understanding of the situation, evaluates the problem by talking with, listening to, and observing the mother.
2. The agent reflects on his or her own training and works with the mother to establish priorities.
   a. What problem demands immediate attention?
   b. What can be discussed during follow-up visits with the same mother?
   c. What can be discussed in a larger setting with the entire community or its health committee?
3. The agent suggests a short-term solution for the immediate problem and discusses its feasibility with the mother. The agent demonstrates the behavior involved (e.g., mashing bananas, feeding a child with a spoon or finger).
4. The agent asks the mother to state what she will do about the problem during the next week. The agent praises the mother for trying to practice the new behavior and says he or she will come back soon to see how she and the child are doing.
5. The agent makes notes concerning follow-up and community sensitization: When should the agent check back with the mother? Is this a problem that should be brought to the attention

Evaluation

During the baseline survey in 1990, each of the three participating NGOs randomly selected eight villages from their active child survival projects to implement NCP activities; they also selected eight villages, matched for socioeconomic and other factors, to act as comparisons.

After one year of activity, the project conducted a rapid assessment in one NGO site (CARE), which needed to withdraw from the program for administrative reasons. The midterm survey used the same protocol as the 1990 baseline survey but it included only 8 of the original 16 villages sampled, 4 program villages and 4 comparisons. The midterm survey found that nutritional status

among children age 0–36 months was better in the four program villages than in the comparison villages, and it was also better than the villages' baseline measurements. Low weight-for-age (less than 2 standard deviations below the WHO/NCHS reference standard for the child's age) was cut in half from 44 percent at baseline to 21 percent in program villages, compared to 38 percent in control villages. The survey results encouraged the project to continue its strategy.

Data to support an impact evaluation of NCP in Mali were collected between 15 December 1994 and 15 January 1995. The two remaining project sites from the baseline, in Dioro (Africare) and Koutiala (World Vision), and one additional NGO in Kolondieba (Save the Children), participated in the survey. Approximately 450,000 people were involved in the intervention in these areas. The survey included 702 women and 354 men, who responded to a series of questions, including a 24-hour dietary recall; and 845 children, 3 years of age and younger, whose weight and height were measured.

Results

The final survey results indicated that the NCP approach improved maternal diet, child feeding behavior, and children's growth. All the findings reported in the following paragraphs are significant.

Impact Pre- and Post-NCP

The evaluations before and after NCP indicated positive changes.

- The prevalence of acute malnutrition among children under 3 years of age (weight-for-age less than 2 standard deviations below the WHO/NCHS reference standard for their age) was reduced from 38 percent to 28 percent in program villages, while it remained virtually unchanged (1 percent increase) in comparison villages.

- Chronic malnutrition, or stunting (height-for-age), was reduced from 46 percent to 31 percent in the program villages, while there was no significant change in comparison villages.

- The proportion of children receiving colostrum more than doubled in program villages, from 25 percent to 58 percent, compared with an increase from 30 percent to 42 percent in comparison villages.

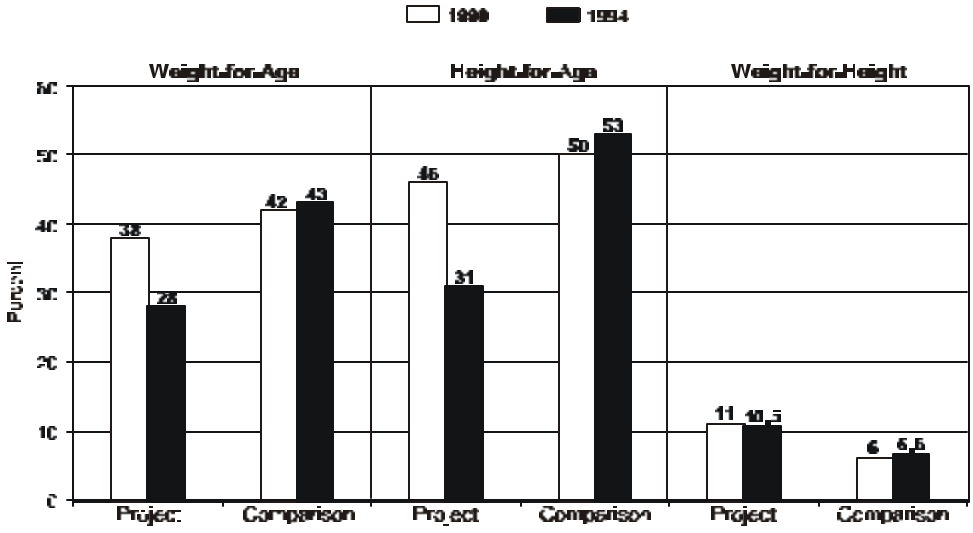
- The proportion of mothers in program villages who refrained from giving infants water until after age 4 months doubled from the baseline of 10 percent to 21 percent, compared with a change from 11 percent to 17 percent in comparison villages.

- Mothers in program villages were more likely to introduce porridge, fruit, green leafy vegetables, cow's milk, and meat or liver into a child's diet, in a reasonable time, than mothers in comparison villages.

Impact in Relationship to NCP Exposure

There was a positive relationship between the length of time a village participated in the project and the improvements in children's measurements. When multivariate statistical techniques were used to examine these relationships, the amount of exposure to the messages proved critical (see figure 4).

Figure 4.
Malnutrition Rates in 1990 and 1994 among Children under 36 Months in Project and Comparison Villages



Notes: Differences between 1990 and 1994 are statistically significant only for the improvement in weight-for-age and height-for-age in project villages.

Figure 4 shows the percentage of children classified as malnourished, based on having weight-for-age, height-for-age, or weight-for-height <-2SD below the international reference median value.

Source: Fishman et al. 1996.

- Using a similar analysis to the one above, children more than 6 months of age were 3.4 times less likely to be stunted (unsatisfactory height-for-age) if the child's mother remembered two or more project counseling contacts or materials.

- Improved nutritional status was not associated with the presence of child survival activities alone, socioeconomic factors alone (particularly wealth indices), or a combination of these factors without the nutrition behavior change component. This was tested in many ways. Sickness two weeks prior to or during the survey was the only variable associated with wasting.

Message exposure was also strongly correlated with increases in several promoted behaviors.

- Men purchased healthier foods for women and children;

- Women and children consumed larger amounts of healthy foods; and

- Caretakers reported better child feeding practices, such as the use of a separate bowl and more purposeful feeding.

Cost-Effectiveness Study of the Mali Project

Jay Ross

Over the past few decades, many strategies to curb malnutrition have been tested and proven effective. Less is known about the cost-effectiveness of these various strategies. In these times of limited resources, program funders, planners, and managers need to know which strategies are most effective from both a programmatic and financial perspective.

An evaluation of NCP's Mali Nutrition Communication project compared baseline (1990) and post-project (1994) surveys in a total of 24 program and 24 comparison villages. Data showed a reduction in the prevalence of low weight-for-age and height-for-age among children under age 3 in the program communities. But at what cost? To examine this question, a retrospective analysis was conducted, designed to estimate the cost-effectiveness of program efforts in terms of the number of children saved from malnutrition and from death.

Project Costs

Calculations of the external financial cost were based on funding provided to the project by USAID (beginning in 1990) and by UNICEF (beginning in 1991)—a total of $1,094,779. However, this figure does not represent the exact cost of the project. For example, it does not include the economic value of inputs provided by the various non-governmental organizations, government agencies, local volunteers, and beneficiaries. On the other hand, the approximately $1 million total cost of the project includes funds for project components that did not contribute directly to the outcomes measured in the evaluation. For example, project funds financed school materials on nutrition topics that, although they may well have important long-term effects, probably had no direct impact on preschoolers' nutritional status in 1994.

Children's Lives Affected

For purposes of this analysis, two outcome measures were used for estimating cost-effectiveness: (1) number of children saved from malnutrition, and (2) number of child lives saved as a result.

An estimated 90,026 children under age 3 lived in the project communities at the time of the program. From 1990 to 1994, there was an estimated reduction by 12 percentage points (10,803 children) in the prevalence of low weight-for-age and by 16 percentage points (14,404 children) in low height-for-age (see fig. 4).[6]

Thus, in terms of external project funds, the program cost $101 per child saved from underweight and $76 per child saved from stunting.[7] In looking at death from malnutrition (either as a direct cause of death or a contributor to death by infectious diseases and other causes), an estimated 3,822 children's lives were saved as a result of the project, at a cost of $282 per child.[8]

This summary is abstracted from the full study, *Cost-Effectiveness of the Nutrition Communication Project in Mali.* (Washington, D.C.: Academy for Educational Development, 1997). Available from the BASICS Project.

[6] Low weight-for-age and height-for-age are defined as a weight or height that is below 2 standard deviations from reference NCHS medians.

[7] Deaths averted are calculated according to the method of Pelletier et al., 1994.

[8] These figures compare favorable with other estimates. For example, Horton (1992), reports the cost per death averted was $1,482 for the Tamil Nadu supplementary feeding program and $1,522 for vitamin A capsule distribution in Bangladesh.

Further Implications of the Results

These calculations probably underestimate the true cost-effectiveness of the project The actual cost-effectiveness of the project is greater than these calculations imply because neither children who benefited, but were older than 3 at the time of the final survey, nor children yet to be born are included.[9] To the extent that caregivers change behavior for these younger siblings in the same family, the benefits of the project are expected to continue. In addition, many of the materials and methods developed through the project were or are being used in similar nutrition communication projects in Niger and Burkina Faso, and they are being adapted for use elsewhere.

Comments on the Methodology

Some aspects of the Mali program raise important issues and challenges for the analysis of cost-effectiveness. Specifically, (1) the wide involvement of many institutions with different levels and kinds of inputs (financial and otherwise) makes a complete cost accounting virtually impossible; (2) the wide variety of activities undertaken by the project makes it difficult to distinguish program activities and associated costs from activities and costs that, although incurred, may not have been directly relevant to the program or specifically relevant to the measured outcomes; and (3) the benefits of the project extend beyond the limited geographic area of its implementation and, in time, beyond the project*s final evaluation.

Ideally, cost analysis should be undertaken concurrently with the program being evaluating. This permits ongoing disaggregation of project expenditures in a way that facilitates distinctions between different kinds of financial expenditures and between financial and other economic costs of the program. These distinctions are valuable for policy purposes because (1) not all of the total costs of a program may be relevant for every application or for every outcome of interest, and (2) often more than just the financial costs need to be considered.

Bearing these caveats in mind, gross estimates of the cost-effectiveness of the Mali intervention suggest that cost effectiveness of the intervention ($101 per child saved from being underweight, $76 per child saved from stunting, and $282 per death averted) compares favorably with that of nutrition interventions reviewed by Horton (1992).

References

Ho, T. J. *Economic Issues in Assessing Nutrition Projects*: *Costs, Affordability and Cost Effectiveness*. PHN Technical Note 85-14, Population, Health and Nutrition Department, Washington, D.C.: The World Bank, 1985.

Horton, S. *Unit Costs, Cost-Effectiveness, and Financing of Nutrition Interventions*. Policy Research Working Paper, Population and Human Resources Department. Washington, D.C.: The World Bank, 1992.

Pelletier, D. L., E. A. Frongillo Jr., D. G. Schroeder, and J. P. Habicht. A methodology for estimating the contribution of malnutrition to child mortality in developing countries. *J Nutr.* 124:2106S-2122S, 1994.

[9] Calculations using a cohort-component method—assuming that (a) the reductions in malnutrition are linear over the period of the program, (b) the new children "saved" from malnutrition in a given year are all children of weaning age (6–18 months), and (c) once a child is "saved" from underweight or stunting, they continue to maintain this well-nourished status throughout childhood—result in estimates of children saved from malnutrition over the five years from 1990 to 1994 that are 38 percent greater than by simply multiplying the reduction in prevalence by the population of children 0–36 months old in 1994.

Lessons Learned

The project demonstrated that within rural Malian communities, the nutritional status of young children can improve without increases in household income, and they can improve with *low-cost communication activities added to child survival programs*. The NCP interventions improved the chances for approximately 750,000 people taking part in the community-based component of the program in Mali, while the radio broadcasts had the potential of reaching any Bambara speaker in the country (more than 9 million people).

By incorporating nutrition behavioral-change strategies into ongoing NGO programs, the start-up time for this project was reduced; in addition, the project was able to build on a foundation of trust and an environment favorable to change. Skill-building workshops and a variety of educational materials enabled community health agents to include nutrition in their ongoing activities. Counseling cards, which complemented the flipcharts, were used without difficulty by both literate and nonliterate village volunteers. Volunteers reported that using these materials increased their credibility and prestige in the village and helped them focus on key messages.

The project design, built on the institutional experience of well-established international NGOs to test strategies, was then expanded to the MOH and local NGOs. The project also facilitated the progressive transfer of responsibility for supporting the NGOs activities to national team members working within CNIECS. Since 1993, NGO health projects have increasingly turned to CNIECS for assistance with materials development, radio production, and training.

While funding for USAID's project in Mali ended in March 1995, some NCP activities continued under the direction of CNIECS, the Group Pivot for Child Survival (an NGO coordinating group partially supported by USAID), and the network of NGOs, with some support from UNICEF. With UNICEF support, the project strategy has expanded to two northern regions of the country. New episodes have been added to the radio drama; print and training materials have been translated into new languages; and new initiatives have been built into the in-school activities launched during the project. For behavior changes in child feeding practices to become culturally ingrained, messages should be programmed for the next five to ten years.

References

Gottert, P. 1995. *Final report: Mali nutrition communication project.* Washington, D.C.: Academy for Educational Development (AED).

Fishman, C., A. Golaz, D. Kanté, and K. Dolo. 1996. *Final evaluation report: Knowledge, attitudes, and reported practices and anthropometric indicators of children's nutritional status*. (Impact Assessment of the Nutrition Communication Project as implemented by the Ministry of Health, Solidarity and the Elderly; Africare; Save the Children; and World Vision in Dioro, Kolondieba, and Koutiala). Atlanta: Rollins School of Public Health, Emory University; Academy for Educational Development (AED); and the Centers for Disease Control and Prevention.

Fishman, C., and D. Kanté. 1990. *Trip report: Baseline KAP survey for vitamin A and nutrition activities*. Washington, D.C.: Academy for Educational Development (AED).

Fishman, C., F. Rohde, A. Thiam, and D. Kanté. 1993. *Knowledge, attitudes, reported practices and anthropometric indicators of children's nutritional status as implemented by the Ministry of Health and CARE*. (Midpoint assessment of the nutrition Communication Project, Macina Circle). Washington, D.C.: Academy for Educational Development (AED).

Ross, J. 1997. *Cost-effectiveness of the nutrition communication project in Mali.* Washington, D.C.: Academy for Educational Development. (Prepared for the SARA project.)

Niger

Promoting Consumption and Production of Vitamin A–Rich Foods

Margaret Parlato, Peter Gottert, Aissa Mamadoultaibou, and Brah Ferdows

Background and Objectives

In Niger, a landlocked country with large northern tracts in the Saharan desert, serious malnutrition can be linked to inadequate food availability and a per capita income equivalent to approximately U.S.$308.[10] Although more than 80 percent of the population lives off the land, only 3 percent of Niger's surface is arable. In 1992, 53 percent of children age 12–23 months were underweight, based on weight-for-age. Among infants age 6–11 months, the rate of malnutrition was 18.5 percent, and by the age of 24–36 months, 47.1 percent were already stunted, based on low height-for-age. Vitamin A deficiency is nearly universal. Based on estimates in 1991, those at highest risk included 75 percent of pregnant women, 66 percent of nursing women, 50 percent of children age 13–36 months, and 62 percent of children age 37–72 months. A 1984 survey in the Tahoua region estimated that 3.9 percent of children suffered from clinical vitamin A deficiency, four times the level at which this deficiency is considered a public health problem.

Although food availability is a problem in Niger, foods rich in vitamin A are generally available or affordable to most families. The Nutrition Communication Project (NCP) 1991–94 Vitamin A Promotion Project was designed to increase consumption of vitamin A–rich foods among vulnerable groups by promoting seasonally available local products.[11] Vulnerable groups were identified as children between the age of 6 months and 6 years, pregnant women, and nursing mothers.

The Ministry of Public Health (MOH) implemented the project with technical assistance from the NCP; it was managed by the Academy for Educational Development (AED). Helen Keller International (HKI) was an implementing partner.

Since 1989, with HKI, the Ministry has been active in distributing vitamin A capsules in two of the country's six provinces. However, as a result of increasing international attention on vitamin A and its role in child mortality, the Ministry was interested in reexamining and expanding its vitamin A program. This new collaborative effort was Niger's first attempt at testing the feasibility of (1) improving the vitamin A

This case study is abstracted from the longer document *Final report: Niger vitamin A promotion project* (Washington, D.C.: Academy for Educational Development, 1995). Available from the BASICS Project.

[10] United Nations Development Programme and The World Bank, *African development indicators* (New York and Washington, D.C.: 1992).

[11] The project had a total budget of U.S.$626,000, including $57,000 for summative evaluation.

status of vulnerable groups by influencing the purchase and consumption of vitamin A–rich foods, and (2) commercially producing foods rich in vitamin A. The unanswered question was whether a food-based strategy could be implemented now, with the existing water resources and market infrastructure, in selected ecological zones of the country.

The project had two major components:

Phase I—Pilot Study

During 1991–92, the project operated in 16 villages in one district of Tahoua, and it reached approximately 26,000 people. The pilot study developed a calendar of available, affordable, and popular vitamin A–rich food sources and experimented with using village drama as a way to reach the target audiences.

Phase II—Multimedia Campaign

During 1993–95, the project expanded to 80 villages in four districts of Tahoua Province, and it reached some 250,000 people. Using radio dramas and radio spots, drama performances, and group discussions using counseling cards, the project launched a ten-month campaign to promote the use of four vitamin A–rich foods, depending on the season: liver; dark-green, leafy vegetables; squash; and mangoes.

The project was designed in two phases because of the uncertainty of continued funding. Tahoua, one of Niger's six provinces, was selected as the project site because it had sufficient water to support vegetable production in the dry season. Birni N'Konni, the single district (or *arrondissement*) selected within this province for phase I activities, also had a diversity of village types in terms of size, socioeconomic development, water supply, existence of dry season vegetable gardens, existence or nonexistence of a dispensary, and market availability of vitamin A–rich foods. This diversity permitted some comparative research.

Examining Communication Strategies

Formative research during the first four months of the project examined the social, economic, and market factors that affect nutritional status.[12] Extensive desk research was combined with carefully focused studies. The research established that it was possible to meet vitamin A needs throughout the year from foods already available in this arid region, and all these sources were culturally acceptable and within the economic means of rural households. A knowledge, attitudes, practice, and dietary recall survey provided information about dietary practices and constraints. A farmers' study explored ways to include vitamin A–rich foods in commercial gardens. A series of market studies identified locally available vitamin A food sources and established a calendar of seasonal "best bet" sources of the nutrient, along with recommended portion sizes for different target beneficiaries. The market studies helped gauge the supply and cost of foods, as well as seasonal trends in the availability of household cash.

[12] The results of two major studies conducted as part of the project provided the basis for program planning: (1) Hung, Man-Ming. *Report on the availability and consumption of vitamin A–rich foods in Niger* (Washington, D.C.: Academy for Educational Development, September 1991), AND (2) KEITH, NANCY. FIELD RESEARCH IN BIRNI N'KONNI: VITAMIN A COMMUNICATION PROJECT (WASHINGTON, D.C.: ACADEMY FOR EDUCATIONAL D MARCH–JUNE 1991).

Project planners identified four target audiences: (1) men, who purchase most of their family's food; (2) women, who prepare and serve food; (3) commercial farmers, who produce vitamin A–rich foods for sale and home consumption; and (4) health and extension agents, who often introduce new ideas.
The project attempted to shift cultural norms about men's roles. Men are traditionally seen as providers of millet, the staple food, and the project messages encouraged men to provide their families with a variety of nutritious foods. In addition, liver was promoted as a nutritious snack food for women and children, not just a treat for men.

Target Behaviors and Messages

Taking into account seasonal availability, household cash flow, and consumer preferences, the project identified foods commonly eaten to promote at different times of the year: dark-green, leafy vegetables; liver; mangoes; and squash. During the dry, cool season, they promoted the cultivation of dark, leafy greens in commercial gardens.

In fact, the situation in this region of Niger offered many opportunities: the foods being promoted were already being eaten, which reduced the extent and risk of the proposed habit change; and the foods were inexpensive and diverse, which appealed to both taste and seasonal availability. Education and information was the most important task. Research showed clearly that people were unaware of the particular dietary needs of young children and of pregnant and nursing mothers; they were also unaware of how much food was required to meet essential needs or how often it should be given. Women did not increase the quantity of food they ate during critical phases of their reproductive lives and their children's diets were generally inadequate.

Program strategies aimed at four key changes in behavior: (1) increase the number of times fathers buy liver as a snack for their children and wives, (2) encourage mothers to buy and share 50 grams of liver with their children weekly, (3) increase the number of times children eat greens, and (4) increase the production of traditional greens in dry-season commercial gardens.

The overall campaign strategy was based on three principles: seasonality, regularity, and frequency. Messages based on these principles would, in turn, lead to greater quantity consumed. Planners selected practices that would, taken together, ensure consumption of vitamin A–rich foods throughout the year, with specific foods promoted in each season. In addition, the project promoted the regular consumption of these foods when they were available. To establish easily remembered dietary patterns, mothers were advised to ensure that their children ate greens every day, and liver once a week, when the father went to market.

Lastly, children and pregnant and lactating women need to consume or be fed enough vitamin A–rich foods. Children need to be fed many times during the day because of their small stomach capacities and immature digestive tracts. For women, total satisfaction of vitamin A needs might be limited by economic constraints, but messages could urge eating more, up to realistic limits. Project messages focused on the promotion of snacks, including liver, *yamoutse (*a prepared, cooked salad of leafy greens), and mangoes, rather than on eating greater quantities by, for example, changing traditional recipes to include "more greens"—this would be unacceptable. In this way, greater *frequency* of eating would lead to greater *quantity* consumed.

Media Strategy

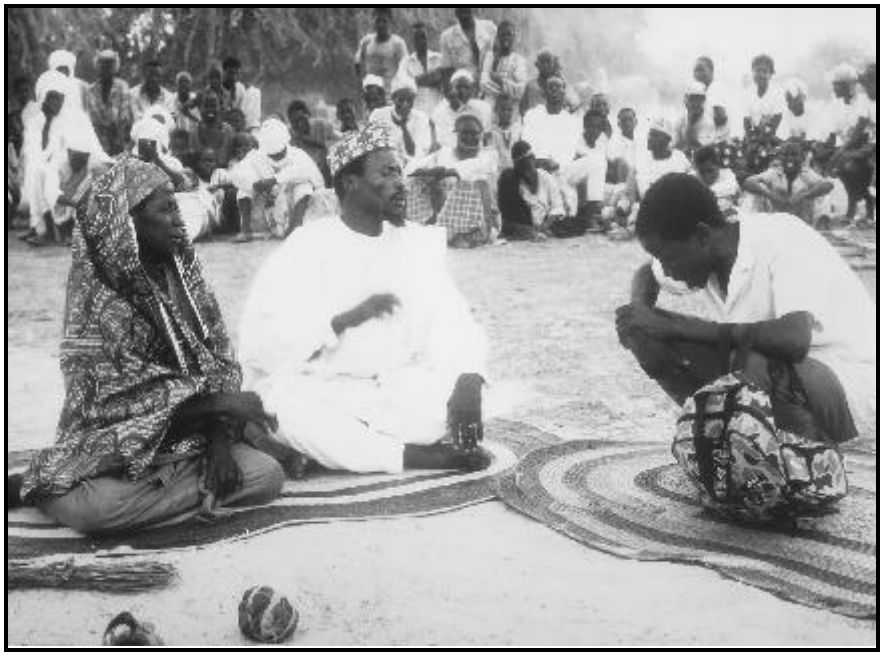
An analysis of villagers' information sources, contact with health providers, and use of mass media showed that conventional channels had a limited reach. Project planners developed the idea of using amateur actors to perform dramatic skits in their own villages. This approach was designed to tap the West African tradition of storytelling, to reach remote rural areas, and to engage local communities in developing their own health education programs.

Crucial to the success of this activity was a well-designed training and supervision program, and an orientation and launch of efforts within individual communities. Planners wanted to be certain that local authorities had a sense of program ownership. In each village, government health workers, teachers, and agricultural extension agents were designated as *encadreurs* (trainers and supervisors), and they were responsible for forming and loosely managing the drama teams. Half of the villages did not have encadreurs, so health or agricultural workers from nearby villages were recruited. Members of the project committee from Niamey assisted the local leaders in the creation of drama teams and the selection of actors. Participation was completely voluntary. Actors were chosen on the basis of their interest and willingness to contribute, not necessarily on past experience or talent.

The project technical committee first trained the encadreurs in a five-day workshop and then supervised them every other month. Encadreurs received a *Role Play Guide* to assist in their training sessions and supervisory visits. At the end of training, each village drama team was to complete one skit. Teams were asked to give at least one performance (three ten-minute skits) per week, for a period of four months.

In the project's second phase, the media mix was expanded to include radio broadcasts and interpersonal education by trained volunteers. Half the villages in the project area had village drama teams; all the villages were exposed to the radio and the educators. This design allowed evaluation of the cost-effectiveness of adding drama (with high demands for training and supervision) to a more conventional mix of outreach interventions.

Figure 5.
Community Group in Niger Uses Drama to Teach Good Food Choices



In each village, government health workers, teachers, and agricultural extension agents were trained to serve as volunteer educators and, in some villages, to work with drama groups (see figure 5). Following training in counseling and leading group discussions, they were asked

to conduct at least one community group discussion per week, as well as provide individual counseling. The project team developed counseling cards in two sizes: a postcart size for face-to-face counseling and a large size to aid village drama teams. To spread the messages, the project distributed 80,000 of the smaller cards to villagers.

A recently opened regional radio station agreed to record the village dramas and air the programs at low cost. A recording team from Radio Tahoua taped at least one performance in each of the approximately 30 villages. They broadcast a total of 42 different ten-minute skits, one per week for ten and a half months. In addition, the radio team went to nondrama villages and recorded interpersonal education sessions for broadcast. Each broadcast clearly identified the village and the actors or volunteers, which was an important incentive to those involved and to the community as a whole. Radio spots, based on the six core messages of the project, were broadcast twice a day, six days a week, for three months.

During phase II, village drama ran for four to six months in 40 villages; interpersonal education activities were carried out for six to eight months, depending on the village; and radio broadcasts ran for ten months. Together, this provided about 12 months of promotional activities.

Evaluation Findings

An assessment of phase I determined that village drama successfully reached rural audiences; 61 percent of men and 34 percent of women saw at least one performance. Consumption of liver and greens rose significantly among women but only modestly among children, indicating the need to design special strategies to encourage new feeding patterns for this group, particularly those under 2 years of age.

The project conducted a detailed evaluation of the multimedia intervention (phase II). In January 1994, at the beginning of phase II, a baseline survey was conducted in two districts, for a total of 15 villages. This was followed by a postsurvey in an equal number of villages in the same districts in November and December 1994. Data indicated that the campaign reached its intended audiences and that project activities influenced purchasing and consumption behavior. Key findings from phase II include the following results.

Exposure to Media

The media mix was effective in reaching rural villagers; 60 percent of men and 40 percent of women heard or saw some element of the educational program. At least one in four women attended a drama performance and saw the counseling cards. One woman in five heard the radio skits and spots.

Knowledge

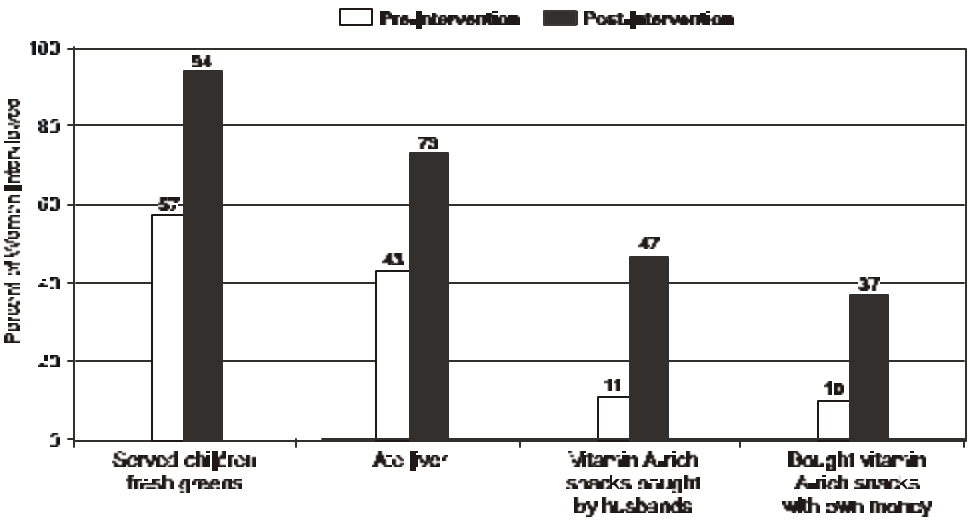
The proportion of women who cited vitamin A–rich foods as important for the health of children age 1–2 years increased from 32 percent to 57 percent.

Consumption of Liver

Liver consumption rose dramatically. The proportion of women reporting that they had eaten liver in the week prior to the survey increased from 43 percent to 73 percent, and 49 percent reported their children

had eaten liver in the previous week, compared with 37 percent prior to the campaign. Liver consumption increased among children in all age groups.

Figure 6.
Women's Reported Vitamin A–Related Practices during the Previous Week



n=375 pre-intervention; n=406 post-intervention
Changes in these practices are significant at p<.01.

Source: P. Stanley Yoder. 1995. Reprinted with permission. From *Strategies for Promoting Vitamin A Production, Consumption, and Supplementation: Four Case Studies*. Washington, D.C.: Academy for Educational Development, 1996.

Consumption of Leafy Greens

The proportion of children who had eaten dark-green, leafy vegetables in the week prior to the survey increased from 57 percent to 94 percent.

Food Purchases

The proportion of men who reported purchasing liver for their families in the previous week more than doubled, from 6 percent to 15 percent. Similarly, 12 percent of the men brought home yamoutse; before the campaign this was a rare event (only 1 percent). Overall purchase of vitamin A–rich foods more than tripled (see figure 6). Women also purchased the recommended foods with their own money.

The percentage of wives reporting that their husbands brought home snacks rich in vitamin A (all sources) increased from 11 percent to 47 percent; the percentage who bought such foods with their own money increased from 10 percent to 37 percent.

HKI independently conducted food consumption surveys, using the HKI food frequency method, at the baseline in January 1994 and again in January 1995.[13] Of the 15 communities surveyed in Tahoua Province

[13] The HKI food frequency method uses cutoff scores for frequency of consumption of vitamin A–rich foods that have been validated against WHO criteria for the prevalence of low serum retinol (a biological indicator of vitamin A deficiency).

at the baseline, only three showed adequate consumption of foods rich in vitamin A by children under 5 years. After the project had been in operation for one year, the same survey methodology used in the same communities found that five more villages (one-third of the total) had moved from the deficient into the adequate category. The HKI survey also revealed that liver, which had been heavily promoted, was one of the foods that contributed most to the success in the Tahoua region.

The survey indicated no increase in the frequency of consumption of vitamin A–rich foods in the adjacent region of Maradi, where health service providers had also been trained to promote these foods but where there had been no project support, radio campaign, community education, or village theater.
Some aspects of the campaign appeared to have limited impact.

- Although the campaign encouraged mothers to begin feeding a sauce with leafy greens to infants at 6 months of age, the proportion of mothers who did so increased only slightly, from 52 percent to 59 percent. Communication efforts need to be intensified to counter womens' belief that greens cause indigestion and to examine other possible obstacles.

- Little change in the consumption of squash was observed. However, it may be that some villages do not grow squash and, therefore, the food may not be as available as the formative research suggested.

- Dry season cultivation of greens by commercial farmers, which was a secondary message, remained minimal. Adopting this practice required farmers to purchase seeds and sacrifice their income from traditional cash crops. Evidently, they were not persuaded that the benefits outweighed the risk.

As expected, on the basis of composite scores, villages that participated in both the pilot project and the phase II multimedia campaign showed significantly higher levels of knowledge and behavior change. Unexpectedly, however, the villages that received radio and group discussions showed greater overall change in knowledge and behavior than the villages with these media *plus* drama teams, even though drama performances were effective in the first phase. Several explanations are possible. Perhaps, most importantly, villages selected for drama teams were generally larger than those in the nondrama group and also larger than those selected in phase I. Spreading the messages—especially messages through drama—was probably not as effective in those villages. The evaluation showed that drama teams tended to perform in their own neighborhoods. The smaller size of the nondrama villages may have encouraged an active word-of-mouth sharing of ideas. Members of the community may have shared and discussed messages about vitamin A with others, creating an energized communications environment; whereas, in the larger drama villages, the community did not share and discuss the concepts as much.

Institutional Development

The pilot project provided on-the-job training for the MOH staff without previous experience in communication programs. By working through the program planning and implementation process at an accelerated pace, the staff gained confidence, as well as experience. The pilot project also provided rapid feedback on effective and ineffective approaches. In phase II, staff skills continued to improve.

As an indication of the project team's newly acquired expertise, the United Nations Food and Agriculture Organization asked the newly trained staff to provide technical assistance to its project in Niger. The NCP project also sent them to Mali to train staff in community drama techniques.

Lessons Learned

The Niger Vitamin A Promotion Project demonstrated that promoting locally available and affordable foods can improve the vitamin A status of rural women and children. Effective strategies can be designed to overcome adverse conditions, including limited sources of vitamin A–rich foods, geographic isolation, illiteracy, and poor access to information sources. In this setting, communication programs must adhere to basic principles: research must be carefully targeted; behaviors must be practical enough to be used routinely; costs must be sustainable; and local professionals must acquire the necessary skills to replicate the process. Multiple approaches must be used to reach rural audiences because of their limited access to information.

Key lessons that emerged from the project include the following:

- A short list of specific questions can be used to guide formative research and keep it timely, cost-effective, and focused on essential issues—that is, only questions that would identify realistic and concrete behavioral targets, the right target groups, and ways to reach them. The project found surprisingly little "wastage" in its research efforts. Most of the information collected fed directly into crucial decision making.

- Village drama can be an energizing force for community involvement and a powerful way to build interest in a nutrition issue. Adequate supervision is required to maintain the motivation of volunteer actors and ensure that the content of performances is appropriate. Managers must devote funding and personnel for this function and closely monitor the implementation.

- Mass media can provide important motivational support to community-led activities and also extend the number of people reached by village-level events. When a radio announcer introduces a drama performance in a remote village, for example, the credibility of the event increases enormously, as does the enthusiasm of the people who contribute to the field activities.

- A pilot project that is limited in scope and completed during a short period can be a powerful on-the-job training arena for agencies and individuals with a lack of experience in designing communication programs. The format provides unusually rapid feedback on what works and what doesn't work, and it gives unseasoned staff confidence and experience.

References

Academy for Educational Development (AED). 1995. *Final report: Niger vitamin A promotion project.* Washington, D.C.: AED.

Baker, S. 1994. *Enquête de base sur les connaissances, les attitudes et les pratiques en matière de vitamine A, arrondissements de Birni N'Konni et Illela*. Washington, D.C.: Academy for Educational Development (AED).

Helen Keller International. 1996. *Using the HKI food frequency method to evaluate a food promotion intervention: Case study from Niger. Nutrition NewsNotes*, spring/winter 1996, Issue No. 1.

Yoder, P. S., Z. Mohammed, O. Abdou, and A. Abou. 1995. *Final evaluation report, vitamin A promotion project: Survey of knowledge, attitudes and reported practices in Illela and Birni N'Konni Districts.* Washington, D.C.: Academy for Educational Development (AED).

Lessons Learned

Margaret Parlato and Peter Gottert

Introduction

Although modest project resources were devoted to evaluation in each of the three West African interventions, the studies yielded important information about the potential of a rigorous consumer-based methodology to improve nutritional practices and status. Significantly, the lessons learned and presented below confirm previous research from development projects focused on behavior change, such as HealthCom.[14] There is a growing body of evidence that what worked for changing practices related to diarrheal disease control and immunizations is also effective in changing nutrition practices.

Building a Coherent System

The three West African programs demonstrated that significant improvements in a number of nutrition behaviors (for example, breastfeeding, infant feeding, vitamin A intake, and maternal dietary practices) can be achieved, even in impoverished communities. The approach can be adapted to include other selected nutrition behaviors that BASICS advocates as part of the nutrition Minimum Package.[15]

In many countries, nutrition communication activities must begin with advocacy. Decision-makers need to first be convinced of the importance, feasibility, and cost-effectiveness of investing in nutrition interventions, such as improving infant feeding practices. Second, nutrition themes to be considered by an education program must be supported by clearly articulated and officially sanctioned national policy guidelines. Nutritional science frequently changes and public health officials are often poorly informed about advances in nutrition. In all three countries, for example, existing nutrition policies and protocols regarding the timing of the introduction of complementary foods had to be updated before the message design and training could take place.

Nutrition communication offers a unique opportunity to integrate disparate health, population, and agriculture interventions. Combining program resources and/or promoters and educators produces a

---

This summary is abstracted from the final chapter of *Final report: Nutrition Communication Project* (Washington, D.C.: Academy for Educational Development, 1996). Available from the BASICS Project.

[14] Results from the HealthCom Project are summarized in Renata Seidel, *Results and realities: A decade of experience in communication for child survival*. Washington, D.C.: Academy for Educational Development, 1996.

[15] The BASICS nutrition Minimum Package includes (1) exclusive breastfeeding for about six months; (2) appropriate complementary feeding starting at about 6 months, in addition to breastfeeding until 24 months; (3) adequate vitamin A intake for women, infants, and young children; (4) appropriate nutritional management during and after illness; (5) iron/folate tablets for all pregnant women; and (6) regular use of iodized salt.

multiplier effect, giving each program more payoff than it would otherwise have. The success, however, of nutrition communication does not appear to be linked to any particular kind of implementation framework, institutional setting, or scale. Targeted behaviors can be integrated into a wide range of child survival, community development, agricultural extension, and women's programs. Success can also be achieved by working through both the public and private sectors, including small NGO programs, as in Niger; national and large-scale government-operated efforts, as in Burkina Faso; NGO networks with dozens of organizations, as in Mali; and hybrid public/private undertakings, as took place during phase II of the Mali project. The key is to take a systematic approach, within the particular context selected, and focus communication efforts on a small number of doable behaviors.

Collaboration among donors requires that a considerable amount of time be invested up-front for joint planning and coordination, as this early investment clearly maximizes the impact of scarce nutrition funds. Jointly produced products, such as the Mali storybooks, which received input from more than 13 organizations, benefited from widespread distribution and use. Continuation of efforts is much more likely after the initial project involvement ends.

Regional strategies for developing print materials and training modules, such as used in Mali and Burkina Faso, can often successfully transcend national borders and cultural differences. Despite the view of many health professionals, materials developed in one country can, with pretesting and limited modifications, be routinely adapted for use in other countries. There are considerable savings in time, cost, and scarce technical input.

Strategic Considerations

To bring about changes in nutrition status requires that changes be made in deeply embedded cultural practices by a range of target groups, and that these new behaviors be performed daily or more frequently over a period of years.

Identify targets of opportunity. Changing complex behaviors that require daily performance is particularly hard to induce and maintain. The three West African projects dealt with this issue by identifying "targets of opportunity," or specific, well-defined time periods when behavioral changes can be made and the change may act as a stimulus to long-term changes. For example, pregnant women in Niger were motivated to "eat well" or to occasionally consume liver when they viewed this as a short-term change during pregnancy benefiting the infant.

Identify discernable benefits. For the consumer, the results from good dietary practices are not as immediate or tangible as those from the use of contraceptives or even immunizations. The challenge for program planners is to identify small but visible health improvements that will result from promoted behavior changes. It appears, for example, that the incidence of diarrhea among exclusively breastfed infants may be perceivably, not just statistically, different enough that mothers recognize it. There is anecdotal evidence that mothers with two or more children notice that the children who are or were exclusively breastfed have less sickness. Focusing on perceivable benefits is highly motivating.

Look at the whole range of influences. When communication interventions are planned, several factors must be considered, including the attitudinal and behavior changes required of multiple target audiences, within the constraints of time, income, and sociocultural systems. For example, it is not enough to encourage changes in children's eating patterns but changes must also occur in the routine of the person who feeds them, prepares and brings the food, and produces or pays for the food. In both Mali and Niger, in order for a woman to eat a better diet during pregnancy, she needed increased financial support from a husband who, in turn, had to be convinced of the need and desirability of providing this support.

Consider the economic and psychic costs of altering dietary patterns, as well as the time required. Market research using approaches employed by the U.S. food industry can help identify cost and convenience barriers, and work out practical solutions to these problems. Psychic costs are more difficult to understand and are challenging to change. Programs need to assess whether the psychic costs of a proposed behavior are too great for change to occur, for example, asking women to think that vegetables should be a substantive part of the meal rather than just a condiment. Psychic costs are often related to social norms. In the long term, changing these may be key to promoting better nutrition. Programs must be prepared to invest on a long-term basis to bring about changes in cultural norms governing food and eating habits.

Realize that product development is complex. A nutrition communication program usually does not have a product to market. Instead, as seen in the West African programs, planners must select a cluster of behaviors to promote. This might mean experimenting with and promoting new food combinations or promoting new food preparations or feeding patterns. Social programs require close coordination by and between nutrition specialists to ensure that the product has maximum nutritional salience, and by marketing experts to ensure that the consumer likes the product and can afford it, in every sense. This initial market research is a pivotal step for programs wishing to improve nutrition practices. Methodologies for conducting this research are now available.

Structuring Interventions

Select nutrition interventions after a thorough review of nutrition data and studies. In targeting the most significant public health nutrition problems in a country, because agricultural conditions, cultural practices, or economic situations can vary, different interventions may be needed for different regions or different socioeconomic or ethnic groups.

Concentrate on two or three specific nutrition-related behaviors and interventions. Approaches that try to address a multitude of nutritional problems usually fail because they cannot provide the necessary focus, reach, and frequency to make an impact. Behavior changes must be feasible for the target audience to implement, in terms of cost, time, and compatibility with existing practices and beliefs. Specific behavioral targets allow a communication program to deal with each behavior change in a multidimensional manner. This includes addressing barriers to change by offering practical solutions, identifying motivational benefits, and providing the necessary reinforcement.

Phase in communication activities. Try to begin something as soon as possible. As was found in Mali, nutrition frequently lags behind other child survival interventions—it is usually the last to be started— and

program planners often find they are starting from scratch. To motivate collaborators and to raise awareness in the target populations, programs should disseminate messages as quickly as possible. New channels can be added later to increase the reach and to target secondary and tertiary audiences.

Create social support. Nutritional habits are deeply imbedded in family tradition and local customs. Behavior change can be facilitated by identifying each group that influences the target audience or can facilitate the behavior by contributing financial, emotional, or other essential support. Different messages and strategies are required for each circle of influence.

Pursue a long-term effort. Messages must be conveyed with enough saliency, for a long enough time, so that the practices being promoted become routine behavior, fully supported by social norms.

Building Capacity

Begin with a short pilot phase. Beginning with a pilot phase of 12 months or less and with limited goals, such as the Niger program, can be an effective way to strengthen the capacity of local agencies and build the staff's confidence. A pilot project allows the staff to go through all essential steps from planning to evaluation, in rapid succession, and it also provides rapid feedback on what works and what doesn't work.

Build capacity in steps. Certain steps of the communication planning methodology are easier to master than others. Focusing on these steps, with an incremental approach to capacity building, works well and provides an important opportunity for local staff to build confidence and project a more technical image to medical colleagues who often equate "nutrition education" with "poster production."

Look beyond the public sector. Initiation of activities through NGOs (as was done in Mali), with their ongoing programs, better trained staff, and management capability, can enable projects to jump-start activities. This approach also allows the Ministry of Health or other ministry the flexibility to incrementally learn skills and gradually take over the technical support role from the expatriate team. The end goal is to enable the MOH to serve as a technical resource for NGOs who cannot afford technical IEC staff of their own and usually do not have the resources to conduct their own research, training, materials development, and mass media promotion. Local private sector enterprises can also provide many key services and management activities.

Conducting and Using Formative Research

Focus on pertinent questions. Researchers can use a short list of highly specific questions to guide formative research and keep researchers focused on essential issues: how to identify realistic and concrete behavioral targets and the right target groups, and how to reach them. Niger, which was the last of the three projects to get started, benefited from this approach and found surprisingly little waste in research efforts. The kinds of questions to be answered should drive the type of research method(s) to be used. Nutrition social marketing must make better use of the food industry market research tools, as well as nutritional anthropology and other community-based research methods, to obtain information on child

feeding practices and practical solutions to improve them. Program managers need to gain experience in how to design highly focused nutrition and market studies.

Many of the rapid appraisal (RAP) methodologies in use are good guidelines for general ethnographic data collection and they can be useful, under certain conditions, in the very early planning stages of a project. For example, RAP models can help planners understand a new behavioral constellation, such as the range of behaviors affecting infant feeding, or a new geographic or cultural region. In Mali, the first West African country to undertake a behavior change effort, NCP found it useful to use RAP methods. The research provided important insights into the different roles and responsibilities of men and women in growing and purchasing different categories of foods for the household, on societal rules governing what constitutes "good" food, and on who has rights to the food. However, after key elements that influence a particular nutritional practice are understood, more focused research methods are appropriate to explore a specific slate of issues. In phase I of the Burkina Faso project, for example, when NCP used RAP methods, a great deal of interesting but extraneous information was collected, and because the information was not always applicable for decision making, the comprehensive nature of the information overwhelmed the national teams.

To ensure that, throughout the program, all decisions are based on research findings, it is essential to have and use a concrete strategy. Often, excellent research is conducted but is put aside when a product or training is developed. A precise, short summary that puts results into a format linked to key decisions can be helpful.

Coverage and Media Mix

More attention should be focused on the mix of channels used in a given country or region. Achieving *reach and frequency* takes careful research and planning. It is critical not only to reach large numbers of the target audience but to reach them frequently enough to stimulate durable behavior change; each audience segment must be reached in an appropriate fashion. The three West African projects demonstrate the importance of using a mix of interpersonal, community, and mass media. Evaluation results indicate radio should have been brought in much earlier, as it was a key missing ingredient in all the programs to extend reach.

Personal contact and individual counseling are especially critical for influencing changes in child care practices and dietary behavior. Evidence from the three projects suggests that some topics, such as infant feeding practices, may be more dependent on individualized counseling and interpersonal interchange than other practices that are easier to explain and less age-specific. At the same time, interpersonal and community activities alone do not provide enough coverage, especially in countries where health services reach less than half the population.

Community Outreach

Dietary practices are home based. Unlike other key child survival interventions, there is no institutional interface to deliver the available information. An important focus of nutritional communication is to find and train appropriate interpersonal outreach cadres to interact with households. MOH and other programs without an ongoing grassroots presence must find ways to tap into existing community networks. This is

perhaps the greatest challenge facing many MOH nutrition communication programs. Collaboration with agencies outside the health sector can greatly increase a program's ability to interact with all segments of the population. All three projects found ways to do this.

Agricultural extension systems, schools, and literacy programs provided networks that worked well to get nutrition messages out. However, intersectoral activities require a great deal of effort. Projects must allow sufficient time to establish working relationships across sectors; find practical ways to integrate nutrition into other groups' agendas; and then develop appropriate strategies, training, and support materials for community-level workers whose main job is not health related.

Village theater can energize community involvement. There is evidence from Niger that such grassroots activities can be organized on a larger scale than initially thought. Adequate supervision, probably on a monthly basis, is required to keep up the motivation of volunteer actors and to monitor content, as well as

actual delivery, of performances. It is unclear if the approach can be cost-effective as a short-term start-up intervention or if it has long-term viability.

Health Worker–Client Interaction

Training front-line health and other agents to provide effective counseling can improve their skills in interacting with mothers, improve motivation, and provide a heightened understanding of how to conduct behavior change activities within the framework of their jobs. However, there is still much to be learned about what constitutes a feasible nutrition counseling intervention in different health facility settings. One such approach is the Integrated Management of Childhood Illness, currently being tried in several countries. It would be useful for further operations research to study how patient flow and job responsibilities can be changed to incorporate nutrition counseling more effectively.

Initial training is not enough to maintain performance levels. Other key factors include clearly articulated job descriptions, realistic expectations about time available for counseling, and good supervision. A large percentage of the project budget in Burkina Faso and Mali was devoted to training and outfitting health workers with educational support materials but relatively little funding was available for follow-up. Greater attention to supervision and management of health worker activities is needed to ensure that new concepts and practices covered in training actually get incorporated into the routine activities of health facilities.

Introducing a client-centered approach to training can change the entire orientation of a service delivery system and can result in the sharing of more culturally appropriate information. To see this through the eyes of a consumer requires that workers understand the client's circumstances and why current opinions and feeding practices are prevalent. Health workers must seek solutions to problems in collaboration with the client, be systematic about follow-up, and recognize the need for greater community sensitization to a given issue.

Investing in the development of well-designed and tested training modules, which can serve as reference points for national and local training programs, results in many benefits. In designing materials for widespread use, or for local adaptation, it is important to involve a wide range of organizations in identifying needs and issues to be addressed, pretesting the materials in their respective programs, and translating and publishing the materials.

Print Materials

Programs typically spend a major portion of their IEC budget on print materials. More active exploration and a rigorous media selection process are needed. There is much to be gained by challenging assumptions about the correct medium for a given target group, message, and context. Each situation should be carefully studied.

Pretesting has come into widespread use during the past decade but the application is not always successful. Frequently, materials are not developed to fit the short time frame available for counseling. The considerable investment many programs make in support materials is not justified. Print and audio materials for health workers should be rigorously tested for usability in a real clinic or other areas where they will be used. New pretest methods, such as observation of draft material in use (photocopy or high-quality laser print versions) and trial periods for draft material with pre- and post-tests to gauge shifts in knowledge and understanding, have shown promise in West Africa.

Specialized technical print materials for health workers may not always achieve the desired results. In several countries, health workers seemed to get their information more readily from popular materials designed for mothers than from technical materials purportedly designed for them. Simple and inexpensive print materials can be as effective as flipcharts and more elaborate products, and can also be more cost-effective. Counseling cards can be particularly cost-effective. They can contain basic information about key behaviors and offer the flexibility to respond with specificity to a client's particular situation. Take-home materials with clear graphic illustrations and prescriptions for nutritious snacks or other behaviors being promoted can empower wives and give them the confidence to ask their husbands or mothers-in-law for certain foods (i.e., carnet familial used in Burkina Faso).

Investing in good artists who can produce materials carefully targeted to the user's needs seems to be a wise investment. Health workers in both Mali and Burkina Faso have reported that they are proud to use their materials and that they also gained status and credibility. Mothers and other target groups enjoy attractive materials and are more easily drawn into discussions about the proposed behaviors.

The distribution of print materials is a weak link even in the most sophisticated country programs. Strategies for contracting out this function to the private sector should be explored. Involvement of NGOs in implementing programs increases the dissemination of materials. If materials can be distributed during training, their appropriate use and distribution will be extended immeasurably.

Radio

Radio contributed significantly to the impact of the three West Africa programs, which underscores the importance of using broadcasting as an essential cornerstone of a communication program. Mainstreaming radio programs, that is, getting material broadcast outside the health education slot, which is often during off-hours and may suffer from a weak reputation, will significantly increase the number of listeners.

Investing in entertainment programs with a strong audience appeal is very cost-effective. In all three West African countries where drama series were broadcast several times, they were rebroadcast free of charge because of their popularity. Production of media that melds entertainment and education in just the right balance, however, requires talent, experience, and technical backup. Producers do not always understand how a program can be both entertaining and educational. Keeping creative talent focused on key program messages and concepts requires regular supervision during the production process. No briefing seems to be thorough enough. Without competent technical oversight, entertainment media products will miss the key messages. Planners who wish to use this approach must invest time and resources. It is also important to pick a format the production team can handle. NCP's experience was that village-produced skits, *vox populi* programs, and call-in shows were the easiest for MOH staff to manage.

Reducing the start-up time needed to get messages on the air can be a powerful way for programs to be more cost-effective. Formats such as radio spots can be produced quickly and cheaply after target behaviors are identified. This leaves enough time to develop other formats, such as dramas and soap operas, that provide more in-depth treatment and appeal but require longer production time.

Monitoring the Program and Materials

Monitoring is a much neglected tool for understanding operational dynamics and detecting what does and does not work in nutrition communication interventions. Inexpensive methods that can be carried out by nonresearchers are available. In particular, the use of observation techniques can provide important insights, for example, observing health worker–client interactions, use of materials, or exit interviews. Even low-budget projects can afford to do this.

Documentation of program inputs and implementation experience is essential to understanding program successes and failures, however, few communication programs do this. A system for keeping records of the experience should be institutionalized as part of management information systems and supplemented by monitoring visits. Information about training, material distribution, radio broadcasts, and other planned interventions is essential. IEC managers also need to be trained in how to coordinate and use this information.

Using Technical Assistance

Short-term technical assistance (TA) at strategic design and decision-making points can provide adequate technical input for a successful project. Key periods are the formative research and analysis stage, strategy development, and management and evaluation planning. New technologies, such as e-mail, can enable U.S.-based staff to provide timely additional TA, as needed.

TA should be carefully timed so that it is relevant to ongoing work. The technical level should be appropriate, even if it means that an activity is carried out at less than a state-of-the-art level and later upgraded. Periodic retraining is essential so new staff and partners can be oriented.

The use of "peer TA" proved highly effective in West Africa. Under NCP, both sending and receiving countries benefited. Visiting experts were credible, respected, and listened to, whether the situation was one health education director talking to another or a community-level trainer talking to other trainers. The opportunity to serve as a peer TA motivated technical staff more than trips to conferences, training in a third world country or the United States, or copublishing journal articles. There were exchanges among all three countries.

In providing TA to more than one country in West Africa, NCP found it effective to quickly start one unique project component in each of the countries—for example, creating radio dramas (Mali) or primary school curricula (Burkina Faso). Peer TA was then used to transfer and adapt the experience to other countries in the region.

Importance of Evaluation

Projects do not always learn as much as they can about what works, what doesn't work, and under what circumstances. To obtain useful results, the evaluation must be planned as part of the project design. The evaluation design needs to be periodically reviewed and adjusted as the project is implemented. Good

documentation about the intervention activities, and the differences in implementation in different regions, is essential. A monitoring plan should, therefore, also be part of the project design. Monitoring information needs to be specially designed to capture the needed details.

Evaluating communication interventions is a highly specialized area that requires competence in a number of areas, including (1) research design, sampling, and statistical analysis; (2) behavior change principles and approaches for measuring change; (3) understanding media and strategies for measuring penetration; (4) understanding the effectiveness of different channels; (5) skills to train local interviewers; and (6) how to deal with data collection under difficult field conditions. Expertise in nutrition epidemiology is also needed to ensure that the evaluation uses appropriate measures and indicators. Given the high cost of evaluations and the importance of obtaining meaningful results, evaluations should use a team approach, bringing together professionals with different specialities. Projects need to build in the management capacity to handle this.

The classic pre- and post-survey design with a control group, although a strong design, has requirements that are often difficult to meet in program settings. In the Mali project, for example, where NCP used this design, the control sites selected during the baseline pre-survey were either exposed to the program messages or unavailable for follow-up due to events outside the control of the project. A more realistic, and less expensive, evaluation design is a post-only design with a control group. Such a design allows inferences about the plausibility of intervention effects, based on participants' exposure to program elements. However, the post-only design also has limitations. A principal drawback is that the researchers do not know with certainty if the intervention and control sites were comparable at the start of the intervention. Further, because there are no baseline measures, it neither allows researchers to determine which program inputs influenced changes in behavior, nor allows an assessment of the magnitude of changes that took place in the intervention area over time. Decision makers should carefully evaluate the questions they ask and then weigh the advantages and disadvantages early in the planning process.

Timing is important when a baseline is part of the evaluation approach. To measure the intervention most effectively, the baseline should be designed only after the project print materials and media are created and the training interventions are planned. Only then can questions be written that will measure shifts in specific knowledge and practices.

The need for extreme specificity in evaluation questions cannot be overemphasized. Only very specific questions will ascertain exposure to the communication intervention itself, especially in countries where there have been multiple health/nutrition education interventions in recent years. Carefully constructed questions are also essential for determining whether health workers have received a particular training in situations where multiple training may have already taken place.